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EXAMINER	
BASKAR, PADMAVATHI	

ART UNIT	PAPER NUMBER
1645	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/552,156	MEINKE ET AL.	
	Examiner	Art Unit	
	Padmavathi v. Baskar	1645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 October 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *38-68* is/are pending in the application.

4a) Of the above claim(s) *39,42,47 and 49-68* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *38,40,41,43-46 and 48* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's response to restriction requirement filed on 10/2/06 is acknowledged.

Election/Restriction

2. Applicant's election Group 1, claims 38-48, SEQ.ID.NO:243, immunostimulatory molecule , a peptide containing at least two Lys-Leu-Lys motifs with traverse is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction, the election has been treated as an election without traverse (MPEP 818.03(a)

Applicant indicated that in view of this species election, Applicant elected SEQ.ID.NO:243, consideration of claims to additional species should no prior art be found relating to the elected species. It is noted however, that the restriction requirement was not drawn to election of species, but rather was drawn to an election of a specific group. As previously set forth,

The claimed inventions do not have unity of invention because the first invention first named does not define a contribution over the prior art and therefore, the invention does not have a special technical feature. The special technical feature shall mean those technical features that define a contribution which each of the claimed inventions, considered as a whole, makes over the prior art. As previously set forth, Mc Cool (J Exp Mad. 2002 Feb 4;195(3):359-65) disclose 22 kD protein antigen identified it as the NH(2)-terminal region of pneumococcal surface protein A (PspA) reactive to serum IgG and secretory IgA (see abstract and, figures 1;-4). Therefore, the technical feature of linking groups I-VII does not constitute a special technical feature as defined by PCT Rule 1:32, as it does not define a contribution over prior art and hence unity of invention is lacking. Therefore, only group I, claims 38-48 with respect to Sp 2216 SEQ.ID.NO:243 and immunostimulatory substance, a peptide containing at least two Lys-Leu-Lys motifs will be examined.

The requirement is still deemed proper and is therefore made FINAL. Applicant timely traversed the restriction (election) requirement in the reply filed on 10/2/06.

Status of claims

3. Claims 1-37 are cancelled.

Claims 38-68 are pending.

Claims 39, 42 and 47 are withdrawn from the elected group I invention, as they are not drawn to the elected invention SEQ.ID.NO. 243 and immunostimulatory substance, a peptide containing at least two Lys-Leu-Lys motifs.

Therefore, claims 38, 40, 41, 43-46 and 48 are under examination . Applicant is advised to limit the claims to the elected invention, SEQ.ID.NO. 243.

Claims 49-68 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected group of inventions **M.P.E.P § 821.03.**

Claim Rejections - 35 USC 101

4. 35 U.S.C. 101 reads as Follows
Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title.

5. Claims 38, 40, 41 and 43 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The product, hyperimmune serum reactive antigen as claimed, has the same characteristics as that found in nature because the protein can be obtained from *S. pneumoniae* infected human body etc. To overcome this rejection the Examiner suggests the amendment of the claims to include purity limitations which would distinguish the characteristics and utility of applicant's product as enabled in the specification from the utility of the product as it exists in nature. It is further suggested that such limitation include the terminology " purified and isolated" (i.e. if such purity is supported in the specification) and/or a

description of what applicant's protein is "free of" relative to the natural source which imparts a distinct utility to the claimed product. For relevant case law see Farbenfabriken of Elberfeld Co. v. Kuehmsted, 171 Fed. 887, 890 (N.D. Ill. 1909) (text of claim at 889); Parke-Davis & Co. v. H.D. Mulford Co., 189 Fed. 95, 103, 106, 965 (S.D.N.Y. 1911) (claim 1); and In re Bergstrom, 427 F.2d 1394, 1398, 1401-1402 (CCPA 1970).

Claim Rejections - 35 USC 112, first paragraph

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 38, 41, 43-46 and 48 are rejected under 35 U.5.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicant is referred to the revised guidelines on written description available at www.uspto.gov (O.G. published January 30, 2001). This is a written description rejection.

Claims 38, 41 and 43 are drawn to a hyperimmune serum-reactive S. pneumoniae antigen that is immunologically reactive with sera from a human having an *S. pneumoniae* infection or an uninfected healthy human, the antigen comprising an isolated S. pneumoniae polypeptide or peptide fragment , wherein the antigen is an isolated fragment comprising amino acids 1-285 of *S. pneumoniae* polypeptide Sp 2216 (SEQ ID NO. 243), wherein the antigen is a fragment of the isolated *S. pneumoniae* polypeptide comprising amino acids 4-25, 52-67, 117-124, 131-146, 173-180, 182-191,195-206, 215-221,229-236, 245-252, 258-279, 286-291,293-302, 314-320, 327-336, 341-353,355-361, or 383-389 of SEQ ID NO. 243.

Claims 44-46 and 48 are drawn to a pharmaceutical composition comprising at least one antigen according to any of claims 38,40, 41or 43 and optionally a pharmaceutically-acceptable carrier or excipient, said composition further comprising an immunostimulatory substance, wherein the immunostimulatory substance is a peptide containing at least two Lys-Leu-Lys motifs and said pharmaceutical composition is a vaccine.

The instant specification may provide an adequate written description for an isolated hyper-immune serum reactive antigen Sp2216 comprising the amino acid sequence as set forth as (Streptococcus) SEQ ID NO. 243 and is used together with an adjuvant for inducing a partial protective immune response. The specification fails to disclose polypeptide comprising fragments of SEQ.ID.NI:243 or an antigenic fragment thereof,

Although drawn to DNA arts, the findings in University of California v. Eli Lilly and Co., 119 F.3d 1559, 43 USPQ2d 1398 (Fed. Cir. 1997) and Enzo Biochem, Inc. V. Gen-Probe Inc. are relevant to the instant claims. The Federal Circuit addressed the application of the written description requirement to DNA-related inventions in University of California v. Eli Lilly and Co., 119 F.3d 1559, 43 USPQ2d 1398 (Fed. Cir. 1997). The court stated that "[a] written description of an invention involving a chemical genus, like a description of a chemical species, 'requires a precise definition, such as by structure, formula, [or] chemical name,' of the claimed subject matter sufficient to distinguish it from other materials." Id. At 1567, 43 USPQ2d at 1405. The court also stated that a generic statement such as "vertebrate insulin cDNA" or "mammalian insulin cDNA" without more, is not an adequate written description of the genus because it does not distinguish the genus from others, except by function. It does not specifically define any of the genes that fall within its definition. It does not define any structural features commonly possessed by members of the genus that distinguish them from others. One skilled in the art therefore cannot, as one can do with a fully described genus, visualize or recognize the identity

of the members of the genus. A definition by function, as we have previously indicated, does not suffice to define the genus because it is only an indication of what the gene does, rather than what it is.Id. At 1568, 43 USPQ2d at 1406. The court concluded that "naming a type of material generally known to exist, in the absence of knowledge as to what that material consists of, is not a description of that material." Id.

Finally, the court addressed the manner by which a genus of cDNAs might be described. "A description of a genus of cDNAs may be achieved by means of a recitation of a representative number of cDNAs, defined by nucleotide sequence, falling within the scope of the genus or of a recitation of structural features common to the members of the genus, which features constitute a substantial portion of the genus." Id.

The Federal Circuit has recently clarified that a DNA molecule can be adequately described without disclosing its complete structure. See Enzo Biochem, Inc. V. Gen-Probe Inc., 296 F.3d 1316, 63 USPQ2d 1609 (Fed. Cir. 2002). The Enzo court adopted the standard that "the written description requirement can be met by 'show[ing] that an invention is complete by disclosure of sufficiently detailed, relevant identifying characteristics ....i.e., complete or partial structure, other physical and/or chemical properties, functional characteristics when coupled with a known or disclosed correlation between function and structure, or some combination of such characteristics." Id. At 1324, 63 USPQ2d at 1613 (emphasis omitted, bracketed material in original).

The inventions at issue in Lilly and Enzo were DNA constructs per se, the holdings of those cases are also applicable .The instant specification may provide an adequate written description an isolated antigen SEQ.ID.NO:243, however, the specification fails to teach polypeptides comprising peptide fragment or antigenic fragments of a polypeptide sequence of SEQ ID NO: 243. The specification fails to teach the structure or relevant identifying

characteristics of a representative number of species of a representative number of fragments of SEQ ID NO: 243 as per Lilly by structurally describing a representative number of fragments or by describing "structural features common to the members of the genus, which features constitute a substantial portion of the genus" have to disclosed. In this application such structural features common to the claimed fragments have not been disclosed. Alternatively, per Enzo, the specification can show that the claimed invention is complete "by disclosure of sufficiently detailed, relevant identifying characteristics, functional characteristics when coupled with a known or disclosed correlation between function and structure, or some combination of such characteristics." In this case, the specification does not disclose polypeptides comprising fragments of polypeptide SEQ. ID. NO : 243, required to practice the claims in a manner that satisfies either the Lilly or Enzo standards. The specification does not provide the complete structure of polypeptides comprising fragments nor does the specification provide any partial structure of such fragments, nor any physical or chemical characteristics of the fragments or any functional characteristics coupled with a known or disclosed correlation between structure and function. Although the specification discloses an isolated protein comprising the amino acid sequence SEQ.ID.NO:243 and does not provide a description of polypeptide comprising fragmentsof that would satisfy the standard set out in Enzo.

The specification also fails to describe the fragments by the test set out in Lilly. The specification describes only protein comprising the amino acid sequence SEQ.ID.NO:243 that can be used as pharmaceutical composition against streptococcal infection caused by Streptococcus pyogenes (LSPN-70) using said polypeptide. Therefore, it necessarily fails to describe a "representative number" of such species, polypeptides comprising fragments for use in Group A streptococcus bacterial infections. In addition, the specification also does not describe "structural features common to the members of the genus, which features constitute a

substantial portion of the genus." Thus, the specification fails to teach the polypeptides comprising claimed fragments and does not satisfy the written description guidelines because an isolated protein comprising (open language) fragments or antigenic fragments of SEQ ID NO: 243 plus unlimited and unknown amino acids would result in an unknown fragments without any structure and other identifying characteristics such as function. Thus, variants/fragments as claimed is broader than SEQ.ID.NO: 243.

Thus, the specification does not provide an adequate written description for fragments of SEQ.ID.NO 243. Claims do not comply with 35 USC 112, first paragraph because it is not supported by an adequate written description in the specification.

9. Claims 38, 40, 41, 43-46 and 48 are also rejected under 35 U.S.C. 112, first paragraph, , because the specification, while being enabling for an isolated hyper immune serum reactive *S. pneumoniae* comprising the amino acid sequence SEQ.ID.NO: 243 or an antigenic fragment consisting of amino acids 9-33, 41-48, 57-79, 97-103, 113-138, 146- 157, 165-186, 195-201,209-215,223-229, 237-247, 247-260, 277-286, 290-297, or 328-342 or1-285 of SEQ ID NO. 243 and a pharmaceutical composition comprising the amino acid sequence SEQ.ID.NO: 243, pharmaceutically acceptable carrier does not reasonably provide enablement for a hyperimmune serum-reactive *S. pneumoniae* antigen that is immunologically reactive with sera from a human having an *S. pneumoniae* infection or an uninfected healthy human, the antigen comprising an isolated *S. pneumoniae* polypeptide or peptide fragment thereof , wherein the antigen is an isolated *S. pneumoniae* polypeptide that is Sp2216 (SEQ ID NO. 243) or an antigenic fragment thereof, wherein the fragment comprises amino acids 1-285 or 4-25, 52-67, 117- 124, 131-146, 173-180, 182-191,195-206, 215-221,229-236, 245-252, 258-279, 286-291,293- 302, 314-320, 327-336, 341-353,355-361, or 383-389 of SEQ ID NO. 243 and a pharmaceutical composition comprising said antigen or an antigenic fragment thereof, said

pharmaceutical composition further comprising an immunostimulatory substance a peptide containing at least two Lys-Leu-Lys motifs, said composition is a vaccine.

The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

Claims have been discussed supra.

The specification teaches S.pneumoniae antigen having the amino acid sequence SEQ.ID.NO:243 and pharmaceutical composition comprising *S.pneumoniae* antigen having the amino acid sequence SEQ.ID.NO:243 , however fails to disclose S.pneumoniae antigen fragments of SEQ.ID.NO:243 and pharmaceutical compositions comprising S.pneumoniae antigen comprising fragments. Therefore, polypeptides comprising fragments of S.pneumoniae antigen having the amino acid sequence SEQ.ID.NO:243 and the pharmaceutical composition or vaccine for use in vivo for the treatment of disease can't predictably use the variants.

While the disclosure provides guidance how to make the claimed antigen, SEQ ID NO: 243 comprising the 392 amino acid sequence from, *S. pneumoniae*, the specification fails to disclose how to make polypeptides comprising fragments of *S.pneumoniae* antigen, SEQ ID NO: 243 that will function as contemplated or claimed.

The specification fails to provide guidance for an isolated antigen comprising, (open language) fragments of SEQ ID NO: 243 plus unlimited and unknown amino acids that would result in an unknown fragments without any structure and other identifying characteristics such as function. Thus, polypeptides fragments as claimed are broader than SEQ.ID.NO: 243 and the specification fail to provide sufficient guidance such that one of ordinary skill in the art can

predict a priori what protein comprising fragments of SEQ.ID.NO: 243 can be made that will function as contemplated or claimed. Polypeptides comprising fragments will function as full length are not routine in the art. The factors to be considered in determining whether undue experimentation is required are summarized In re Wands 858 F.2d 731, 8 USPQ2nd 1400 (Fed. Cir, 1988). The court in Wands states: "Enablement is not precluded by the necessity for some experimentation such as routine screening. However, experimentation needed to practice the invention must not be undue experimentation. The key word is 'undue,' not 'experimentation.' " (Wands, 8 USPQ2d 1404). Clearly, enablement of a claimed invention cannot be predicated on the basis of quantity of experimentation required to make or use the invention. "Whether undue experimentation is needed is not a single, simple factual determination, but rather is a conclusion reached by weighing many factual considerations." (Wands, 8 USPQ2d 1404). The factors to be considered in determining whether undue experimentation is required include: (1) the quantity of experimentation necessary, (2) the amount or direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims.

The specification teaches *S.pneumoniae* antigen having the amino acid sequence SEQ.ID.NO:243 and pharmaceutical composition comprising S.pneumoniae antigen having the amino acid sequence SEQ.ID.NO:243 , however fails to disclose S.pneumoniae antigen fragments of SEQ.ID.NO:243 and pharmaceutical compositions comprising S.pneumoniae antigen comprising fragments. The teaching of the specification cannot be extrapolated to enable the scope of the claims because the claims as broadly drawn include, however, using such polypeptides comprising fragments for treating infection which is acknowledged to be unpredictable because the specification fails to disclose the critical residues that are important

for treatment or prevention or disclose any changes made in a protein seq.id.no: 243 to obtain fragments that can be used to treat or prevent infection caused by *S.pneumoniae.* The specification provides no information on the immunogenicity of protein fragments of seq.id.no: 243 or the ability of such to treat or protect from *S.pneumoniae* bacterial infection. The specification fails to teach that the claimed fragments are capable of generating a humoral or cellular immune response such that broadly claimed fragments can be used to treat or prevent *S.pneumoniae* infections. The specification fails to teach any immune response generated by means of polypeptides comprising fragments. It is well recognized in the art, that it is unclear whether an antigen(s) derived from a pathogen will elicit protective immunity (Ellis, R.W. (Chapter 29 of "VACCINES" Plotkin, 5.A. et al. (eds) published by W. B. Saunders company (Philadelphia) in 1988, especially page 571, 2nd full paragraph] exemplifies this problem in the recitation that "The key to the problem is the identification of that protein component of a virus or microbial pathogen that itself can elicit the production of protective antibodies.... and thus protect the host against attack by the pathogen". The specification fails to teach polypeptide fragments thereof alone or in combination with immunostimulatory substances in pharmaceutical composition to confer protection from infection, as is requisite of a method of treatment or prevention as contemplated and as inferred by the vaccine and pharmaceutical composition claims. In the absence of a teaching of the claimed polypeptides comprising protein fragments of SEQ.ID.NO: 243 can generate an immune response and that immune response is effective in prevention or treatment of infection, the specification is not be enabled for the claimed polypeptides comprising fragments of SEQ.ID.NO: 243, wherein the claims include limitations drawn to vaccine/pharmaceutical compositions. In view of the unpredictability of the art, the lack of teachings of the specification, it would require undue experimentation on the part of the skilled artisan to practice the invention as claimed.

If applicant overcomes the above rejection, still claim 38 will be rejected under scope of enablement as hyper immune serum reactive *S.pneumoniae* antigen is immunologically reactive with sera from a human having *S.pneumoniae* infection, however it is not reactive with sera from uninfected healthy human as there are no *S.pneumoniae* specific antibodies to bind to said antigen.

Claim Rejections - 35 USC § 112

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

11. Claims 40, 41, 43-46 and 48 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 40 and 41 are rejected as being vague and unclear in the recitation of "(SEQ.ID.NO:243)". It is also not clear whether SEQ.ID.NO:243 is intended to be a limitation of the claim. Applicant is advised to remove the parenthesis.

Given the above, claims 40 and 41 are rejected as being indefinite in the use of antigen Sp2216 as the apparent sole means of identifying the claimed antigen. The use of laboratory designations only to identify a particular antigen renders the claims indefinite because different laboratories may use the same laboratory designations to define completely distinct antigen or antibodies. Amendment of the claims to include the sequence identification number is required, because sequence numbers are unique identifiers which unambiguously define a given antigen.

Given the above, in claim 40 the abbreviations "Sp 2216" is used without definition upon their first appearance in the claims.

Claim Rejections - 35 USC 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claim 38 is rejected under 35 U.S.C. 102 (b) as being anticipated by Mc Cool (J Exp Mad. 2002 Feb 4;195(3):359-65) .

The transitional limitation "comprises" similar to the limitations, such as, "has"," includes," "contains," or "characterized by," represents open-ended claim language and therefore does not exclude additional, unrecited elements. See M.P.E.P 2111.03 [R-1]. See *Molecular Research Corp. v. CBS, Inc., 793 F2d 1261, 229 USPQ 805 (Fed. Cir. 1986); In re Baxter, 656 F.2d 679, 686, 210 USPQ 795, 803 (CCPA 1981); Ex parte Davis, 80 USPQ 448, 450 (Bd. App.1948)* ("comprising" leaves "the claim open. for the inclusion of unspecified ingredients even in major amounts". On the other hand, the limitation "consisting of represents closed claim language and excludes any element, step, or ingredient not specified in the claim. In *re Gray, 53 F. 2d 520, II USPQ 255 (CCPA 1931); Ex parte Davis, 80 USPQ 448, 450 (Bd. App. 1948).*

Claims 38 is drawn to hyperimmune serum-reactive *S. pneumoniae* antigen that is immunologically reactive with sera from a human having an *S. pneumoniae* infection or an uninfected healthy human, the antigen comprising an isolated *S. pneumoniae* polypeptide or peptide fragment thereof .

Mc Cool (J Exp Mad. 2002 Feb 4;195(3):359-65) disclose 22 kD protein antigen identified it as the NH(2)-terminal region of pneumococcal surface protein A (PspA) reactive to serum IgG and secretory IgA (see abstract and figures 1-4) and thus read on claims 38 and 40. The prior art anticipated the claimed invention.

14. Claims 38, 40, 41, 43-45 and 48 are rejected under 35 U.S.C. 102(b) as being anticipated by Masignani et al publication number WO 200277021 (WO 02/077021)

Claims 38, 40 , 41 and 43 are drawn to hyperimmune serum-reactive *S. pneumoniae* antigen that is immunologically reactive with sera from a human having an *S. pneumoniae* infection or an uninfected healthy human, the antigen comprising an isolated *S. pneumoniae* polypeptide or peptide fragment thereof , wherein the antigen is an isolated *S. pneumoniae* polypeptide that is SP2216 (SEQ ID NO. 243) or an antigenic fragment thereof, wherein the fragment comprises amino acids 4-25, 52-67, 117- 124, 131-146, 173-180, 182-191,195-206, 215-221,229-236, 245-252, 258-279, 286-291,293- 302, 314-320, 327-336, 341-353,355-361, or 383-389 of SEQ ID NO. 243.

Claims 43-45 and 48 are drawn to a pharmaceutical composition comprising at least one antigen *S. pneumoniae* polypeptide that is SP2216 (SEQ ID NO. 243) and optionally a pharmaceutically-acceptable carrier or excipient said pharmaceutical composition further comprising an immunostimulatory substance.

Masignani et al WO 02/077021 Accession number ABU02747 disclose an isolated S. pneumoniae antigen comprising the amino acid sequence SEQ.ID.NO;243 (i.e., fragment) and is 100% identical to the claimed SEQ.ID.NO: 243 (see the sequence alignment). Thus the prior art read on the claims 38, 40, 41 and 43 . The teaching of the Masignani et al disclose that the pharmaceutical compositions comprise therapeutic amount of peptide SEQ.ID.NO: 4652 (see page 20 under pharmaceutical compositions) in a pharmaceutically acceptable carrier and thus read on claim 44. This composition is a vaccine composition as it used for therapeutic or preventive disease (see page 20, lines 21-32) and thus meet the limitations of claim 48. Further, the art reads on claim 45 and 46 as the composition comprise immunostimulatory agents (see page 21, lines 10-50) such as bacterial cell walls, muramyl peptides and adjuvants etc. Thus, the prior art anticipated the claimed invention.

Remarks

17. No claims are allowed.

Relevant Prior Art

18. The prior art made of record and not relied upon in any of the rejections is considered pertinent to Applicants' disclosure:

Lapez (Int Microbiol. 2004 Sep; 7(3): 163-71) teach Streptococcus pneumoniae (pneumococcus), a bacterium with a long biological pedigree, best illustrates the rapid evolution of antibiotic resistance, which has led to major public health concerned discusses the molecular basis of the two main virulence factors of pneumococcus, the capsule and cell-wall hydrolases, as well as new approaches to developing medicinal weapons for preventing pneumococcal infections. In addition, current knowledge regarding pneumococcal phages as potential contributors to virulence and the use of lytic enzymes encoded by these phages as therapeutic tools is reviewed.

Fleck RA, (Clinical and Diagnostic Laboratory Immunology, January 2005, p. 19-27, Vol. 12, No. 1) teaches *Streptococcus pneumoniae* is an important bacterial pathogen responsible for sepsis, meningitis, pneumonia, and otitis media. Antibodies to pneumococcal capsular polysaccharide (PS) protect the host by opsonizing pneumococci for phagocytosis by granulocytes and macrophages, and this opsonizing potential has also been associated with vaccine-induced immunoprotection

Klugm et al Emerg Infect Dis. 2005 Jun; 11(6): 802-7 teach

the emergence of multidrug resistance in pneumococci has largely been focused on penicillin-resistant Streptococcus pneumoniae. Macrolide antimicrobial drugs have been widely used to empirically treat community-acquired RTIs because of their efficacy in treating both common and atypical respiratory pathogens, including S. pneumoniae. However, increased macrolide

use has been associated with a global increase in pneumococcal resistance, which is leading to concern over the continued clinical efficacy of the macrolides to treat community-acquired RTIs. The art provides an overview of macrolide-resistant S. pneumoniae and assess the impact of this resistance on the empiric treatment of community.

Hoffman et al (Pediatrics. 2003 Nov; 112(5): 1095-102) teach Streptococcus pneumoniae infections in the neonate (SPIN) are relatively unusual events (1%-11% of neonatal sepsis) but are associated with substantial morbidity and mortality. Previous reports suggest that invasive SPIN is associated with prolonged rupture of membranes, maternal colonization/illness, prematurity, early-onset pneumonia presentation (<72 hours), and high mortality (50%). Twenty-nine cases of SPIN were identified from a total of 4428 episodes of S pneumoniae infection in children. Sixty-six percent were male, and 55% were white; the mean age was 18.1 day (+/-8.2). Ninety percent of infants were >or 38 weeks' gestation. Two mothers had bacterial infections at delivery; 1 had S pneumoniae isolated from both blood and cervix, and 1 had clinical amnionitis. The primary diagnoses in the neonates were bacteremia meningitis bacteremic pneumonia, septic arthritis/osteomyelitis and otitis media.

Conclusion

19. Papers related to this application may be submitted to Group 1600, AU 1645 by facsimile transmission. Papers should be transmitted via the PTO Fax Center, which receives transmissions 24 hours a day and 7 days a week. The transmission of such papers by facsimile must conform to the notice published in the Official Gazette, 1096 OG 30, November 15, 1989. The Right Fax number is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PMR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PMR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PMR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Padma Baskar Ph.D., whose telephone number is ((571) 272-0853. A

message may be left on the Examiner's voice mail system. The Examiner can normally be reached on Monday to Friday from 6.30 a.m. to 4.00 p.m. except First Friday of each bi-week.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's acting supervisor, Bruce Campell can be reached on (571) 272-0974. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1600.

Padma Baskar Ph.D

SUSAN UNGAR, PH.D
PRIMARY EXAMINER